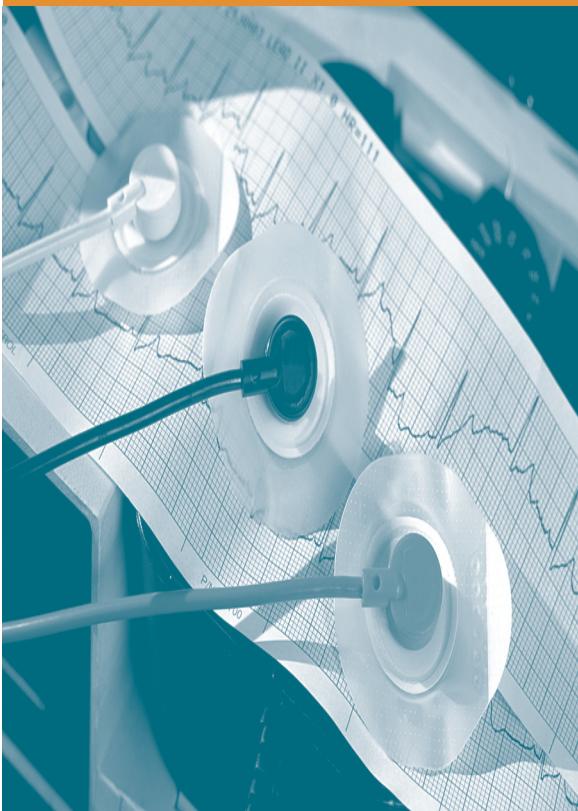


CALIFORNIA OCCUPATIONAL GUIDES



ELECTROCARDIOGRAPH TECHNICIANS



WHAT DOES AN ELECTROCARDIOGRAPH TECHNICIAN DO?

Cardiovascular disease is a leading cause of death in America. However, heart-related diseases can be best treated most effectively if they are caught early. When a physician suspects heart disease, he or she may ask that an electrocardiograph (EKG or ECG) be made. An EKG test may also be included

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2005

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as part of a comprehensive physical examination, especially for older patients. An EKG machine records the electronic impulses transmitted by the heart during and between heartbeats. ELECTROCARDIOGRAPH TECHNICIANS operate and maintain electrocardiograph machines.

EKG Technicians begin the testing procedure by relaxing the patient, helping them cope with what is sometimes a stressful situation. The test is usually performed with the patient lying upon an examination table, but a stress EKG requires the patient to walk on a treadmill while heart activity is recorded. Electrocardiograph Technicians perform the following tasks:

- The Technician attaches from 3 to 12 electrodes (also called leads) to the patient's chest, arms and legs.
- He or she then starts the machine which begins recording wave tracings on a roll of paper.
- The Technician may relocate the electrodes, and make notes on the EKG tracing.
- Once the test is completed, the Technician may mark sections of the report that the physician should review.
- In addition to the standard recording of heart rhythm for examination purposes, the EKG Technician can assist in monitoring the heart during other diagnostic and therapeutic procedures.
- An EKG may assist physicians during heart catheterization, in which a small tube is inserted in a vein and snaked through the blood vessels to the heart, where blockages in blood vessels may be present.
- Multi-dimensional tracings, phonocardiographs, and echocardiographs pulse recordings, and long-term (12 to 24 hours) EKG recordings made on magnetic tape may be performed by specially trained EKG Technicians.
- The Technician monitors patients' comfort and safety during tests, alerting physicians to abnormalities or changes in patient responses.

WHAT SKILLS ARE IMPORTANT?

Important skills, knowledge, and abilities for Electrocardiograph Technicians include:

- Biology – Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
- Operation and Control – Controlling operations of equipment or systems.
- Science – Using scientific rules and methods to solve problems.
- Operation Monitoring – Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Written Comprehension – The ability to read and understand information and ideas presented in writing.
- Oral Comprehension – The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Oral Expression – The ability to communicate information and ideas in speaking so others will understand.
- Problem Sensitivity – The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

EKG Technicians should possess the ability to follow detailed instructions, have presence of mind in emergencies, and be reliable and patient.

Technicians must be physically fit, have good eyesight and normal hearing and must have the empathy and patience to relate to patients. They should also have the mechanical aptitude to properly set up the machine, and to perform minor repairs and adjustments when necessary.

WHAT'S THE WORK ENVIRONMENT?

Hospitals, doctor's offices, or medical clinics are the most common places EKG Technicians work. Their work areas are well lighted, temperature

controlled, and relatively quiet. Unless they are involved in an emergency, Technicians work in a relaxed environment. Since the greatest portion of their working day is spent in giving EKG examinations, Technicians must spend much of their time on their feet, helping patients onto the table or treadmill, and administering the test.

Union Membership

Some Technicians are covered by the Service Employees International Union (SEIU) labor contracts.

WHAT'S THE CALIFORNIA JOB OUTLOOK?

The following information is from the occupational projections produced by the Employment Development Department (EDD) Labor Market Information Division (LMID) and represents the broad occupational group Cardiovascular Technologists and Technicians, which includes Electrocardiograph Technicians:

Cardiovascular Technologists and Technicians

Estimated number of workers in 2002:	3,300
Estimated number of workers in 2012:	4,400
Projected Growth 2002-2012:	33.3%
Est. openings due to separations by 2012:	600

These figures do not include self-employment.

There will be a total of 1,700 job opportunities in this occupation during the projections period.

Trends

Population trends show significant growth in the number of older Californians. This will increase the demand for EKG testing. Somewhat countering this trend is the utilization of other health personnel who have been trained to perform electrocardiographs. Increased productivity and computerization of paperwork has also had an impact on the number of Technicians needed. There will also be some job opportunities created as Technicians leave the field.

WHAT DOES THE JOB PAY?

California Earnings

The following information is from the Occupational Employment Statistics Survey of Employers by EDD/LMID:

Cardiovascular Technologists and Technicians 2005 Wages

Hourly wages range from	\$16.13	to	\$26.82
Average hourly wage	\$21.78		
Average annual wage	\$45,318		

These figures do not include self-employment.

Pay tends to be higher in urban and teaching hospitals. Previous experience, additional education, and certification can aid an applicant applying for higher paying positions.

Hours

Since most of EKG tests are done as part of a routine physical examination, day shifts and 40-hour weeks are most common. Acute care facilities such as hospitals or clinics may maintain evening, night, or weekend staffs to handle emergencies.

Benefits

EKG Technicians usually receive good benefits. These generally include vacations and holidays, sick leave benefits, retirement, and health care. Some employers provide tuition assistance, free educational courses, and uniforms.

HOW DO I PREPARE FOR THE JOB?

Education and Training

Because the set up and operation of an EKG machine is somewhat complex, proper training is essential. Most EKG Technicians are trained on the job. Training can last from three months to two years, depending upon the extent and scope of instruction. The basic EKG testing procedure can be taught in three to six months, which is the usual length of training offered by hospitals and

clinics. Longer programs are generally offered in community colleges or vocational schools. The Armed Forces also has training facilities. Employers generally look for applicants with high school diplomas and an educational background in the physical sciences and biology. Other courses that may enhance an applicant's employability include data processing, psychology, and mathematics. Cardiopulmonary resuscitation (CPR) training is also a common requirement. When filling positions in EKG training programs at a hospital or clinic, many employers prefer to place workers already employed in the health care system. Nursing assistants, or those in similar occupations, are common occupations to train and promote for EKG positions. Some hospitals, especially smaller institutions in non-urban areas, will only consider experienced EKG Technicians for vacancies.

Licensing and Certification

There are no license or certification requirements for this occupation in California. However, some community colleges and other training providers in California offer training in electrocardiography leading to a certificate of achievement or completion. A certificate in cardiopulmonary resuscitation (CPR) may be required by the employer.

Continuing Education

There are no continuing education requirements for this occupation.

HOW DO I FIND THE JOB?

Contacting the employer remains one of the most effective job search methods. Most EKG Technicians are employed in the medical/hospital field.

Search these **yellow page** headings for listings of private firms:

- Hospitals
- Clinics
- Physician's Offices

The following Internet resources can be helpful to the job search process:

America's Career InfoNet
www.acinet.org

America's Job Bank
www.ajb.dni.us

CalJOBSSM
www.caljobs.ca.gov

Job Search and Resume Writing
www.worksmart.ca.gov/success_tips_menu.html

Local Job Service Offices
www.edd.ca.gov/jsrep/jsloc.htm

Occupational Information Network (O*NET) Online
<http://online.onetcenter.org>

One-Stop Career Centers List
www.edd.ca.gov/ONE-STOP/pic.htm

For statewide and local projections, wages, employers by county, and other occupational information go to www.labormarketinfo.edd.ca.gov and select *Find an Occupation Profile*.

WHERE CAN THE JOB LEAD?

Opportunities for advancement are best for EKG Technicians who learn the more complex procedures, such as stress testing, echocardiography, and cardiac catheterization. With additional training, EKG Technicians can transfer to similar occupations. These include Cardiovascular Technologist, Diagnostic Radiologic Technologist, and Respiratory Therapist.

OTHER SOURCES OF INFORMATION

Alliance of Cardiovascular Professionals
P.O. Box 2007
Midlothian, VA 23113
(757) 497-1225
www.acp-online.org

Service Employees International Union (SEIU)
1313 L Street, NW
Washington, DC 20005
(202) 898-3200
www.seiu.org

RELATED OCCUPATIONAL GUIDES

Diagnostic Radiologic Technologists	No. 89
Laboratory Assistants and Technicians (Except Health)	No. 201
Licensed Vocational Nurses	No. 313
Respiratory Therapists	No. 454

OCCUPATIONAL CODE REFERENCES

SOC (<i>Standard Occupational Classification</i>) Cardiovascular Technologists and Technicians	29-2031
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O*NET (<i>Occupational Information Network</i>) Cardiovascular Technologists and Technicians	29-2031.00
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OES (<i>Occupational Employment Statistics</i>) Electrocardiograph Technicians and Technologists	32926
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